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(54) **HINGE-LID PACK WITH MAGNETIC CLOSURE**

(57) The present invention is directed to a hinge-lid pack for elongated smoking articles comprising: an outer box (2) with a lid (3); an inner frame (4) contained within the box; an inner sealed block (5) encasing the elongated smoking articles, the inner sealed block being contained within the box, wherein the inner sealed block is formed from a flexible sheet material and comprises a flap (6) configured to close an access opening (7) in the inner sealed block; an inner board (8) contained within the inner sealed block to support the inner sealed block; and magnetic means (9, 10) for releasable closure of the inner sealed block, wherein said magnetic means comprise a first magnetic material (9) provided on the flap (6) of the inner sealed block and a second magnetic material (10) arranged on a site of the pack such that the first and second magnetic material at least partially overlap when the flap is in a closed configuration.

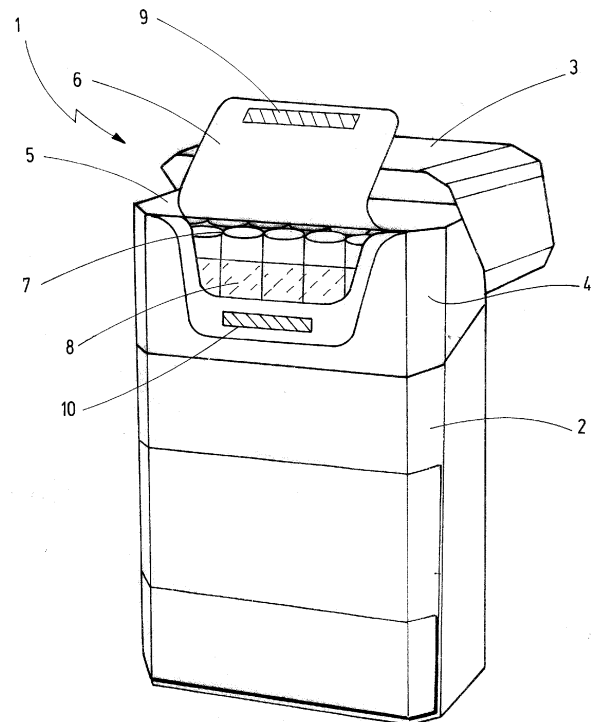


Fig.1

Description

[0001] The present invention relates to a hinge-lid pack for elongated smoking articles.

[0002] Hinge-lid packs for elongated smoking articles, like e.g. cigarettes, cigarillos or cigars, are well known in the art. Typically, a hinge-lid pack for elongated smoking articles comprises an outer box with a hingeable lid and an inner frame arranged within the outer box. The elongated smoking articles are contained in the interior of the box and are usually provided with an additional wrapping that is positioned within the box in order to protect the elongated smoking articles against loss of moisture, freshness and aroma.

[0003] There are a number of different types of hinge-lid packs known in the art, wherein the present invention refers to a particular type of hinge-lid packs.

[0004] This type of hinge-lid pack is characterized in that the smoking articles are not wrapped in a classical inner liner created simply by folding of a blank but are encased in an inner sealed block, wherein the inner sealed block is made by wrapping a group of elongated smoking articles in a flexible sheet material and by sealing overlapping flaps of the flexible sheet material to fully encase the elongated smoking articles. By doing so, the elongated smoking articles are more effectively protected against loss of moisture, freshness and aroma until first opening of the inner sealed block to access the elongated smoking articles. The inner sealed block comprises an opening aid for releasable opening and closure in order to allow repeated access to the content of the inner sealed block. This opening aid comprises a flap to cover an access opening of the inner sealed block and an adhesive for fixing the flap against the body of the inner sealed block.

[0005] Usually, a consumer will not use up all elongated smoking articles contained within a hinge-lid pack at once, but will access the interior of the box multiple times until the content is used up. Thus, a consumer repeatedly opens and closes the inner sealed block via the flap. During each cycle of opening and closure of the inner sealed block, the adhesive of the flap may contaminate with tobacco debris, dust or the like. Contamination of the adhesive of the flap may lead to a decrease in stickiness and, thus, may lead to impaired function of the flap. However, insufficient closure of the inner sealed block will lead to increased loss of moisture, freshness and aroma from the content of the inner sealed block.

[0006] Thus, in view of the above, it would be advisable to provide users with a hinge-lid pack for elongated smoking articles comprising an inner sealed block with improved protection against loss of moisture, freshness and aroma.

[0007] The present invention provides a hinge-lid pack for elongated smoking articles comprising:

- an outer box with a lid;
- an inner frame contained within the box;

- an inner sealed block encasing the elongated smoking articles, the inner sealed block being contained within the box, wherein the inner sealed block is formed from a flexible sheet material and comprises a flap configured to close an access opening in the inner sealed block;
- optionally, an inner board contained within the inner sealed block to support the inner sealed block; and
- magnetic means for releasable closure of the inner sealed block, wherein said magnetic means comprise a first magnetic material provided on the flap of the inner sealed block and a second magnetic material arranged on a site of the hinge-lid pack such that the first and second magnetic material at least partially overlap when the flap is in a closed configuration.

[0008] By applying magnetic means for releasable closure of the inner sealed block, the resulting closure is less prone to impairment by tobacco debris, dust or the like and, thus, provides improved closure functionality to the inner sealed block. Even if the inner sealed block is opened and closed for a high number of times, the closure remains fully functional and ensures prolonged protection of the elongated smoking articles contained in the inner sealed block from loss of moisture, freshness and aroma.

[0009] The hinge-lid pack of the present invention comprises an outer box with a lid. The outer box is configured to house an inner frame and an inner sealed block. The outer box preferably comprises a bottom wall, a front wall, a back wall and one or more side walls, wherein the walls define an interior space configured to house an inner sealed block. In a cross-sectional view, the box can have a polygonal shape, preferably the box has a quadrangular, hexagonal or octagonal shape, wherein one or more corner regions may be rounded or beveled. The box comprises a lid which is connected to the box by means of a hinge line. Usually, the lid will be connected to the remaining body of the box at a back wall of the box. In use, the lid is pivoted about the hinge line to open and close the outer box and to allow access to the inner sealed block contained within the box. The box can be made from a sheet-like material like e.g. paper or cardboard. Preferably, the box is formed from a single first blank of the sheet-like material.

[0010] In the hinge-lid pack of the present invention, an inner frame is arranged and contained within the outer box. The inner frame is configured and arranged to provide support and stability to the outer box and serves as a stop for the lid in a closed state of the box. The inner frame can be made from a sheet-like material like e.g. paper or cardboard. Preferably, the box is formed from a single second blank of the sheet-like material.

[0011] The hinge-lid pack of the present invention comprises an inner sealed block which is arranged within the outer box. The inner sealed block encases the elongated smoking articles to preserve the elongated smoking ar-

ticles from loss of moisture, freshness and aroma. The general architecture and composition of such an inner sealed block is well known in the art. Exemplary embodiments of such inner sealed blocks as well as methods of production are disclosed in DE 10 2009 034 705 A1, WO 2011/069575 A1 and WO 2015/114019 A1.

[0012] The inner sealed block is formed from a flexible sheet material which can be wrapped around a group of elongated smoking articles. Preferably, the flexible sheet material is aroma-tight, moisture-tight and may be thermally sealable. The flexible sheet material comprises one or more layers of a flexible material like e.g. a foil or a film. Preferably, the flexible sheet material comprises one layer, at least two layers or multiple layers of a flexible material like e.g. a foil or a film or combinations thereof.

[0013] The inner sealed block comprises a flap configured to close an access opening of the inner sealed block. The flap comprises a first magnetic material, wherein said first magnetic material may be provided directly on the flap or may be attached indirectly to the flap via one or more additional components like e.g. an adhesive label. The flap *per se* may be provided as a separate component which is attached to the inner sealed block e.g. as an adhesive label. Preferably, the flap forms an integral part of the flexible sheet material forming the inner sealed block. The flap can be defined by a weakening line formed into the flexible sheet material or may be pre-cut from the flexible sheet material leaving a hinge line around which the flap is pivotable. Preferably, the weakening line is configured to secure the flap in a closed configuration until the inner sealed block is opened for the first time by tearing the flap and breaking the weakening line. The weakening line can be provided e.g. as a perforation line or a line with decreased material thickness.

[0014] The inner sealed block can comprise an adhesive label attached directly or indirectly to an outer surface of the inner sealed block. Preferably, the adhesive label is attached at least in part to the top surface of the inner sealed block and/or extends at least in part to a portion of the front surface of the inner sealed block. The adhesive label preferably covers and/or overlaps the integral flap of the inner sealed block. In case the flap is provided in form of an additional component, the adhesive label represents the flap or forms part of the flap. The adhesive label comprises a fixing portion which is arranged and configured to allow releasable fixing of the flap in a closed configuration. The fixing portion comprises a contact surface which is configured to contact another site of the pack to releasable fix the flap in a closed configuration. Preferably, the first magnetic material is arranged on the adhesive label. In particular, the first magnetic material can be positioned on the fixing portion of the adhesive label. In order to allow for further improved performance, the first magnetic material may cover at least 50% of the contact surface of the fixing portion. Preferably, the whole contact surface of the fixing portion is covered with first magnetic material. In addition to the first magnetic material, the adhesive label can comprise

additional means for releasable closure of the flap like e.g. an adhesive.

[0015] In case the flexible sheet material of the inner sealed block comprises more than one layer at least in the area where the flap is positioned, the flap can be formed by misplaced pre-cutting or weakening of the flexible sheet material such that a flap is defined which comprises an outer rim region on the circumference of the flap, wherein the outer rim region is configured to allow fixation of the flap in a closed configuration. The rim region comprises a contact surface which is configured to contact another site of the pack to releasable fix the flap in a closed configuration. In DE 10 2009 034 705 A1 exemplary embodiments are disclosed which exhibit the general architecture of such a flap. In the hinge-lid pack of the present invention, the first magnetic material can be positioned on the rim region of the flap. In order to allow for further improved performance, the first magnetic material may cover at least 50% of the contact surface of the rim region of the flap. Preferably, the whole contact surface of the rim region is covered with first magnetic material. In addition to the first magnetic material, the rim region can comprise additional means for releasable closure of the flap like e.g. an adhesive.

[0016] The hinge-lid pack of the invention optionally further comprises an inner board contained within the inner sealed block. The function of the inner board is to support the inner sealed block, to secure the group of elongated smoking articles in a desired shape and arrangement and to facilitate easy wrapping of the group of elongated smoking articles into the flexible sheet material of the inner sealed block. The inner board can be manufactured from a sheet-like material like e.g. paper or cardboard. Preferably, the inner board is formed from a single third blank.

[0017] In order to allow releasable closure of the inner sealed block upon opening, the hinge-lid pack of the invention comprises magnetic means. The magnetic means comprise a first and a second magnetic material. At least one of the first and second magnetic materials attracts the other.

[0018] The first magnetic material is provided on the flap of the inner sealed block, wherein the first magnetic material can be arranged directly or indirectly on a surface of the flap. For the purpose of the present invention, the first magnetic material is provided on the flap if the first magnetic material is in direct contact with the flap or is in direct contact with a further component which is connected to the flap and which is moved together with the flap when the flap is brought into open or closed configuration. In other words, the first magnetic material can be applied to the flap as such or to another component attached to the flap like e.g. an adhesive label.

[0019] The second magnetic material is arranged on a site of the hinge-lid pack of the invention such that the first and second magnetic materials overlap at least in part when the flap is in a closed configuration.

[0020] The second magnetic material can be arranged

e.g. on an outer surface of the inner sealed block. This architecture allows quick and easy securing of the flap in a closed configuration. The flap can be designed to be small in order to keep the access opening within the inner sealed block to a minimum. By doing so, unintended loss of moisture, freshness and aroma is minimized.

[0021] Alternatively, the second magnetic material can be arranged on the inner board contained within the inner sealed block. The magnetic closure may be effected through the flexible sheet material of the front wall of the inner sealed block or the inner board may extend into the access opening of the inner sealed block. This architecture provides great flexibility with regard to the size and shape of the flap.

[0022] Alternatively, the second magnetic material can be arranged on the inner frame of the box. This architecture has the additional advantage that the inner sealed block is secured within the box when the flap is in closed configuration. Thus, unintended loss of the inner sealed block from the hinge-lid pack is avoided.

[0023] For the purpose of the present invention, the term "magnetic material" refers to material which is suitable for interaction with a magnetic field; thus, the magnetic material of the invention includes paramagnetic materials and ferromagnetic materials. The term "magnetic material" also denotes both magnetized material and magnetisable material. Preferably, at least one of the first and second materials comprises a ferrite or a rare earth cobalt. A ferrite is a type of ceramic compound composed of an iron oxide combined chemically with one or more additional metallic elements. Ferrites are usually non-conductive ferrimagnetic ceramic compounds derived from iron oxides such as hematite (Fe_2O_3) or magnetite (Fe_3O_4) as well as oxides of other metals. Preferred ferrites are barium ferrite, strontium ferrite, and cobalt ferrite. A magnetisable material may be a magnetic material which remains magnetised only in presence of an external magnetic field, i.e. a paramagnetic material. Alternatively, magnetisable material may be a material which becomes magnetised in the presence of an external magnetic field and which remains magnetised after the external field is removed, e.g. a ferromagnetic material.

[0024] The first and second magnetic material may be the same or different, provided that the magnetic orientation of the first and second magnetic material is not the same and the specific pair of magnetic materials used as first and second magnetic material are compatible to give a functional closure.

[0025] The first and second magnetic material may both comprise a magnetised material.

[0026] Alternatively, at least one of the first and second magnetic materials comprises a magnetised material and the other comprises a magnetisable material. In this configuration, upon contact of the first and second magnetic material the magnetisable material can be magnetised and a functional magnetic closure is established.

[0027] It is also possible that at least one of the first and second magnetic materials is a magnetisable mate-

rial and wherein only a portion of the magnetisable material is magnetized.

[0028] The first and second magnetic material can be deposited by conventional means and methods known in the art. Typically, at least one of the first and second magnetic materials is provided by printing, spotting, casting, spraying, plating, coating or deposition methods.

[0029] The first and second magnetic material is not limited to a particular shape or thickness. Shape and thickness depends on multiple factors like thickness of the materials used for the other parts of the hinge-lid pack, dimension of the pack or components thereof, and nature of the materials used for the components of the hinge-lid pack of the invention. The person skilled in the art is able to determine an appropriate shape and thickness without undue burden taking into consideration the characteristics of the particular embodiment. Preferably, at least one of the first and second magnetic material exhibits an elongated shape, more preferably a rectangular shape.

[0030] In the hinge-lid pack of the invention, the first and second magnetic material may fully cover each other without significant overhang, when the flap is in a closed configuration. Alternatively, the first and second magnetic material are arranged and configured such that they do not fully superimpose each other when the flap is in closed configuration. The surface area covered by the first magnetic material may be smaller than the surface area covered by the second magnetic material or *vice versa*.

[0031] At least one of the first and second magnetic materials can comprise a plurality of columns of magnetic material, wherein each column alternates in magnetic orientation compared to the adjacent column. In other words the magnetic orientation across at least one of the first and second magnetic material may alternate in positive and negative orientation. This type of magnetic material can be used to provide a hinge-lid pack wherein misplacement of the first and second magnetic material towards each other is prevented because first and second magnetic material attract each other properly only in the desired configuration. Alternatively, this type of magnetic material can be used to provide a hinge-lid pack wherein the first and second magnetic materials are moved along each other during closure of the flap and, thus, provide a sensible signal of the closing event.

[0032] In the following, the invention is described in more detail by way of exemplary embodiments.

FIGURES:

[0033]

Figure 1 shows a first embodiment of the hinge-lid pack of the invention, wherein the first magnetic material is arranged on the flap and the second magnetic material is arranged on the surface of the inner sealed block.

Figure 2 shows a second embodiment of the hinge-lid pack of the invention, wherein the first magnetic material is arranged on the flap and the second magnetic material is arranged on the inner board of the inner sealed block.

Figure 3 shows a third embodiment of the hinge-lid pack of the invention, wherein the first magnetic material is arranged on the flap and the second magnetic material is arranged on the inner frame of the box.

EXAMPLES:

[0034] In the below explanation of different exemplary embodiments of the invention, identical components are denoted with the same reference numbers.

[0035] In Fig. 1 a first embodiment of the hinge-lid pack for elongated smoking articles of the present invention is presented.

[0036] The hinge-lid pack 1 comprises a box 2 with a lid 3, wherein the lid 3 forms integral part of the box 2 and is pivotable along a hinge line along the back wall of the box 2 to open and close the box 2. The hinge-lid pack 1 further comprises an inner frame 4 which is contained within the box 2 and serves as stop for the lid 3 in a closed position of the pack 1. Positioned within the box 2 is an inner sealed block 5, wherein the inner sealed block 5 encases the elongated smoking articles. The inner sealed block 5 is contained within the interior of the box 2 and is fully enclosed by the box 2 and the lid 3 when the lid 3 is in closed configuration. The inner sealed block is formed from a flexible sheet material which is wrapped around the elongated smoking articles and sealed to keep the smoking articles fresh. The inner sealing block 5 comprises a flap 6. The flap 6 can form an integral part of the flexible sheet material of the inner sealed block 5 or can be provided as separate component attached to the inner sealed block 5 e.g. as adhesive label. The flap 6 is configured to close an access opening 7 of the inner sealed block 5 which is formed upon first opening of the inner sealed block. The inner sealed block 5 comprises an inner board 8 which is contained in the inner sealed block in order to support the inner sealed block 5 and to maintain the group of elongated smoking articles in the desired shape and arrangement.

[0037] The hinge-lid pack 1 further comprises magnetic means for releasable closure of the inner sealed block 5. The magnetic means are formed of at least a first and a second magnetic material 9, 10. The first magnetic material 9 is provided on the flap 6 of the inner sealed block 5. The second magnetic material 10 is arranged on a surface of the inner sealed block such that the first and second magnetic materials 9, 10 at least partially overlap when the flap 6 is in a closed configuration.

[0038] In Fig. 2 a second embodiment of the hinge-lid pack for elongated smoking articles of the present invention is presented.

[0039] The hinge-lid pack 1 of Fig. 2 differs from the hinge-lid pack of Fig. 1 only in the position of the second magnetic material 10. In the hinge-lid pack 1 of Fig. 2, the second magnetic material 10 is arranged on the inner board 8 of the inner sealed block 5.

[0040] In Fig. 3 a third embodiment of the hinge-lid pack for elongated smoking articles of the present invention is presented.

[0041] The hinge-lid pack 1 of Fig. 3 differs from the hinge-lid pack of Fig. 1 only in the position of the second magnetic material 10. In the hinge-lid pack 1 of Fig. 3, the second magnetic material 10 is arranged on the inner frame 4 of the box 2.

Claims

1. A hinge-lid pack (1) for elongated smoking articles comprising:

an outer box (2) with a lid (3);
an inner frame (4) contained within the box (2);
an inner sealed block (5) encasing the elongated smoking articles, the inner sealed block (5) being contained within the box (2), wherein the inner sealed block (5) is formed from a flexible sheet material and comprises a flap (6) configured to close an access opening (7) in the inner sealed block (5);
optionally, an inner board (8) contained within the inner sealed block (5); and
magnetic means for releasable closure of the inner sealed block (5), wherein said magnetic means comprise a first magnetic material (9) provided on the flap (6) of the inner sealed block (5) and a second magnetic material (10) arranged on a site of the hinge-lid pack (1) such that the first and second magnetic material (9, 10) at least partially overlap when the flap (6) is in a closed configuration.

2. The hinge-lid pack (1) of claim 1, wherein the flap (6) forms integral part of the flexible sheet material of the inner sealed block (5), preferably the flap (6) is generated by pre-cutting the flexible sheet material of the inner sealed block (5) or the flap (6) is defined by a weakening line in the flexible sheet material of the inner sealed block (5).

3. The hinge-lid pack (1) of one of the preceding claims, wherein the flexible sheet material comprises one layer, at least two layers or multiple layers of a flexible material.

4. The hinge-lid pack (1) of one of the preceding claims, wherein the flexible sheet material comprises or consists of a foil or a film.

5. The hinge-lid pack (1) of one of the preceding claims, wherein the box (2) is formed from a first blank, preferably the inner frame (4) is formed from a second blank, and even more preferably the inner board (8) is made from a third blank. 5
6. The hinge-lid pack (1) of one of the preceding claims, wherein the second magnetic material (10) is arranged on a surface of the inner sealed block (5). 10
7. The hinge-lid pack (1) of one of the preceding claims, wherein the second magnetic material (10) is arranged on the inner board (8) of the inner sealed block (5). 15
8. The hinge-lid pack (1) of one of the preceding claims, wherein the second magnetic material (10) is arranged on the inner frame (4).
9. The hinge-lid pack (1) of one of the preceding claims, wherein the first magnetic material (9) is directly arranged on a surface of the flexible sheet material of the flap (6). 20
10. The hinge-lid pack (1) of one of the preceding claims, wherein the first magnetic material (9) is indirectly arranged on a surface of the flexible sheet material of the flap (6). 25
11. The hinge-lid pack (1) of claim 10, wherein the hinge-lid pack (1) comprises an adhesive label deposited on a surface of the inner sealed block (5) to cover and/or overlap the flap (6), the adhesive label comprising a fixing portion being arranged and configured to allow releasable fixing of the flap (6) in a closed configuration, wherein the first magnetic material (9) is arranged on the adhesive label. 30 35
12. The hinge-lid pack (1) of one of claims 1 to 9, wherein the flexible sheet material of the inner sealed block (5) comprises more than one layer and the flap (6) is formed by misplaced pre-cutting of the flexible sheet material such that a flap (6) is defined which comprises a rim region on the circumference of the flap (6), wherein the first magnetic material (9) is arranged on the rim region of the flap (6). 40 45
13. The hinge-lid pack (1) of one of the preceding claims, wherein at least one of the first and second magnetic material (9, 10) exhibits an elongated or rectangular shape. 50
14. The hinge-lid pack (1) of one of the preceding claims, wherein at least one of the first and second magnetic material (9, 10) comprises a plurality of columns of magnetic material, each column alternating in positive and negative magnetic orientation. 55
15. The hinge-lid pack (1) of one of the preceding claims wherein the first and second magnetic material (9, 10) are arranged and configured such that they do not fully superimpose each other when the flap (6) is in closed configuration.
16. The hinge-lid pack (1) of one of the preceding claims, wherein the first and second magnetic material (9, 10) comprises or consists of the same magnetic material.
17. The hinge-lid pack (1) of one of the preceding claims, wherein at least one of the first and second magnetic materials (9, 10) comprises a ferrite or a rare earth cobalt.
18. The hinge-lid pack (1) of one of the preceding claims, wherein one of the first and second magnetic materials (9, 10) comprises a magnetised material and the other comprises a magnetisable material.
19. The hinge-lid pack (1) of one of the preceding claims, wherein at least one of the first and second magnetic material (9, 10) is a magnetisable material and wherein only a portion of the magnetisable material is magnetised.

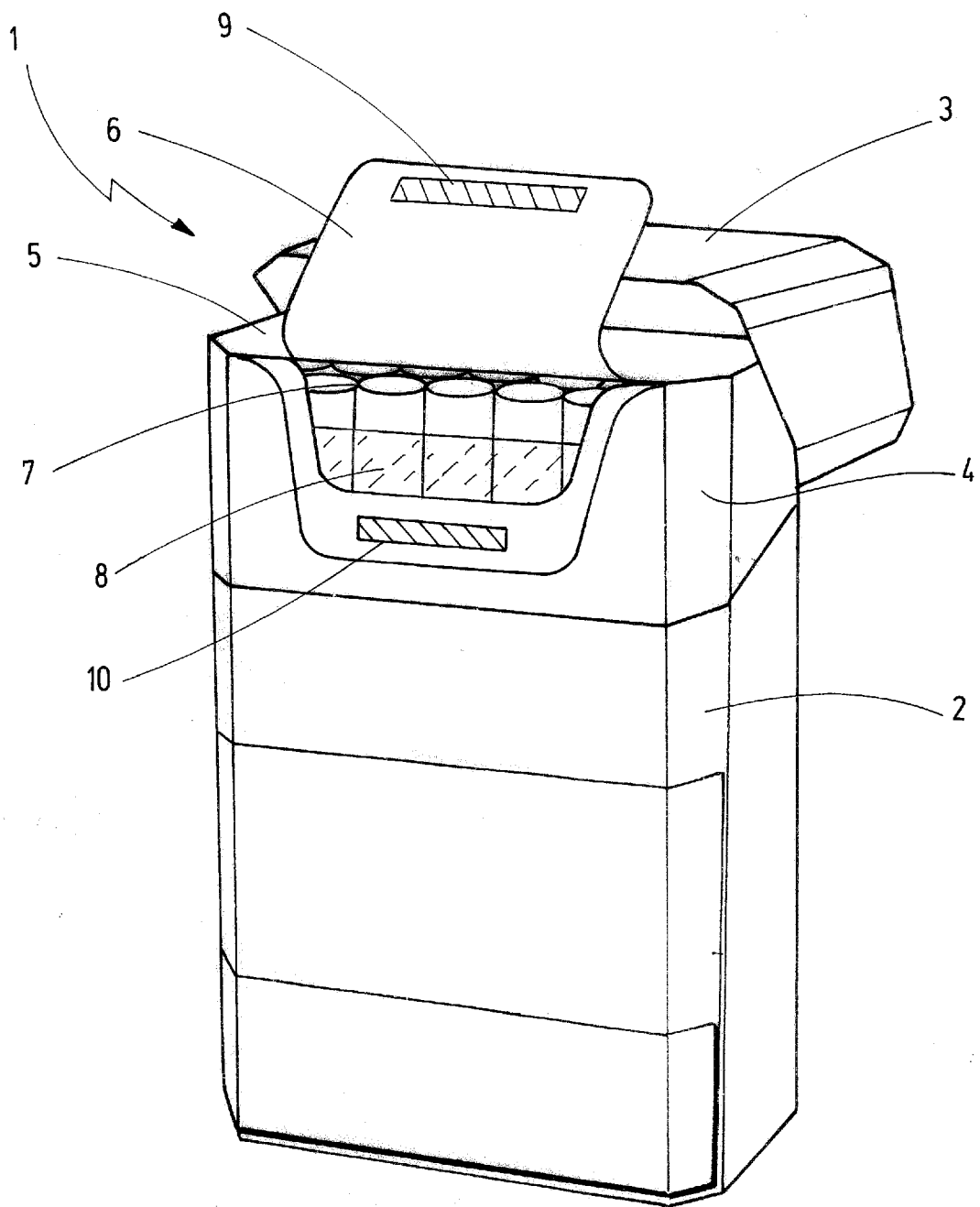


Fig.1

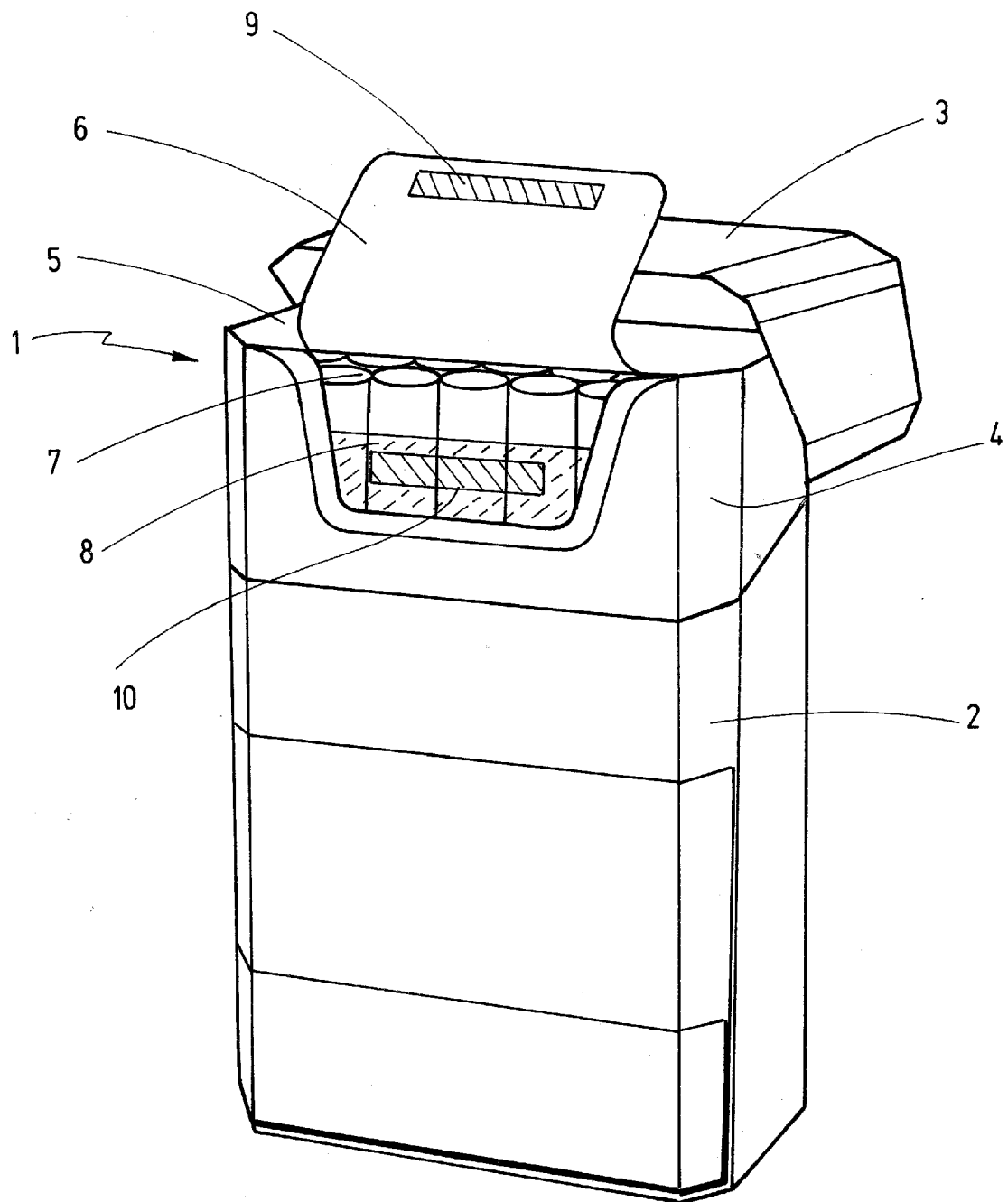


Fig.2

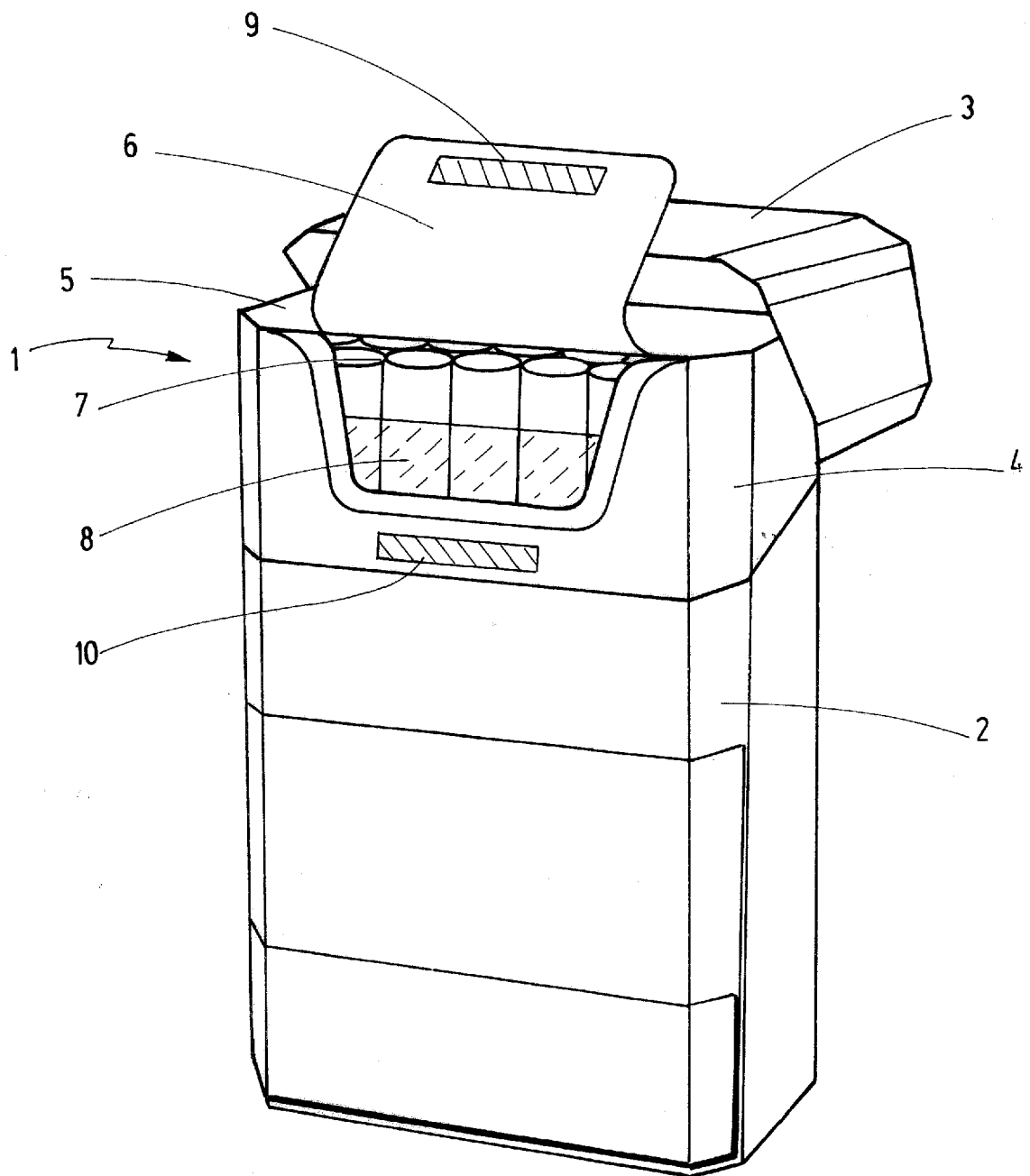


Fig.3



EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
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A	EP 2 944 575 A1 (JT INT SA [CH]) 18 November 2015 (2015-11-18) * paragraph [0036] - paragraph [0042]; figures 2-9 *	1-19	
A	EP 2 233 407 A1 (JAPAN TOBACCO INC [JP]) 29 September 2010 (2010-09-29) * paragraph [0026]; figures 1-7 * -----	1-19	
			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 3 May 2016	Examiner Derrien, Yannick
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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